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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,650	02/27/2002	Eric Yijing Zhang	Q66048	9665

7590 03/14/2007  
Sughrue Mion Zinn Macpeak & Seas  
2100 Pennsylvania Avenue N W  
Washington, DC 20037-3213

EXAMINER
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HALPERN, MARK

ART UNIT	PAPER NUMBER
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1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/914,650	<b>Applicant(s)</b> ZHANG ET AL.	
	<b>Examiner</b> Mark Halpern	<b>Art Unit</b> 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/2007, has been entered. Claim 8 is amended.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2) Claims 1-7, 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the given drastic condition" and "the given minimized oxygen access" in lines 14 and 15 of the claim. There is insufficient antecedent basis for the limitations in the claim.

Claim 1, line 12, the term "or like means" renders the claim indefinite.

Claim 1 lists a number of steps, some of which are optional. The Examiner finds the recitation of "a steam separator" unclear because the steps are not laid out in such a way as to clearly delineate a steam separator as a separate step from the preceding

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optional chemical treatment system. The Examiner suggests identifying each distinct step or choice of steps with a number or letter (i.e., (i) or (a)), or providing a semicolon at the end of each distinct step or choice of steps.

Claim 11: the terms "very high" and "low" are relative terms, which render the claim indefinite. The terms "very high" and "low" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the temperature and concentration of the pulp suspension at the location of bleach addition and immediately downstream are indeterminate.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) Claims 1-7, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADMITTED PRIOR ART (Jepson claim 1 of instant application, page 5 of disclosure, Example 1 of disclosure, pages 13 to 15, and Figure 1) in view of MADISON (U.S. Patent 3,186,899), WEST (U.S. Patent 3,467,574), and GRIMSLEY (U.S. Patent 4,863,564).

Claim 1: the ADMITTED PRIOR ART is an implied admission that the subject matter of the preamble is the prior art work of another, see MPEP 2129 III. The

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ADMITTED PRIOR ART discloses a method for manufacturing bleached mechanical and chemithermomechanical pulp wherein a starting material in form of lignocellulose material, preferably wood in chip form, is caused to pass through at least one preheater or through a chemical treatment system, and a steam separator, and then through a single refining stage containing one refiner or two refiners with each refiner in the single refining stage being directly followed by steam separation and with only steam separation existing between refiners, in which the lignocellulose material is converted to a pulp suspension which, subsequent to the most downstream of said steam separation, is passed at least to one storage vessel and to a screening department from which the major part of the pulp suspension is taken out as an essentially finished bleached product or is taken out and passed to further treatment stages; and in which reductive bleaching agent as the only bleaching agent is added to the advancing pulp suspension without the use of a bleaching tower or like means (Jepson claim).

The ADMITTED PRIOR ART does not disclose expressly adding the bleaching agent at a location downstream of the most downstream refiner and upstream of the screening department; and bleaching said pulp under the given drastic condition from the aspect of temperature and the given minimized oxygen access at said location and immediately downstream of said location.

MADISON discloses adding the bleaching agent (col. 2, lines 24-25) at a location downstream of the most downstream refiner (col. 2, lines 25-26) and upstream of the screening department (col. 2, lines 2-5). MADISON does not disclose expressly bleaching said pulp under the given drastic condition from the aspect of temperature

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and the given minimized oxygen access at said location and immediately downstream of said location.

WEST discloses bleaching pulp under the drastic condition of temperatures ranging from 65 to 100 °C or more (150 to 212 °F; col. 3, lines 6-11 and 17-23). WEST does not disclose expressly minimized oxygen access at said location and immediately downstream of said location.

GRIMSLEY discloses minimized oxygen access at said location and immediately downstream of said location (Abstract, lines 3-6).

Claim 2: the ADMITTED PRIOR ART discloses adding complexing agent to the lignocellulose material (page 13, lines 27-29) upstream of said refiner.

Claim 3: the ADMITTED PRIOR ART discloses passing the pulp suspension to two refiners in series (Figure 1, items 6 and 10, and pg. 14, lines 1-5).

Claim 5: the ADMITTED PRIOR ART discloses also passing the pulp suspension to a slusher (latency pulper) located immediately upstream of the storage vessel (the latency chest) (Figure 1, items 14 and 17, and pg. 14, lines 9-12).

Claim 6: the ADMITTED PRIOR ART discloses that a pump would be placed immediately downstream of the slusher (pg. 5, lines 6-7). Therefore, the Examiner assumes that the slusher of Example 1 is connected with a pump. Furthermore, ADMITTED PRIOR ART discloses that it is conventional to deliver the bleaching agent to a pump (pg. 14, lines 28-30, and pg. 15, lines 9-10). Therefore, the Examiner asserts that at the time of the invention, it would have been obvious to a person skilled in the art to add the bleaching agent to the pulp suspension in a pump located in connection with

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the slusher, said pump being caused to transport the pulp suspension to the storage vessel in a pipe.

Claim 7: the ADMITTED PRIOR ART discloses causing reject pulp suspension from the screening department (Figure 1, item 19) to pass through a refiner (Figure 1, item 28) and thereafter through a slusher (Figure 1, item 31) whereafter said reject pulp suspension is finally fed into the main pulp suspension flow, in the storage vessel (the latency chest) (Figure 1, item 17) (pg. 14, lines 18-21 and line 32 to pg. 15, line 3).

Claim 12: the ADMITTED PRIOR ART discloses that the bleaching agent is dithionite (pg. 14, line 29).

The ADMITTED PRIOR ART does not disclose expressly adding complexing agent to the pulp suspension immediately upstream of and/or in said second refiner; that the temperature of the pulp suspension is very high from a bleaching aspect at the location at which the bleaching agent is added and immediately downstream of said location or that the solid content or concentration is low at said location; or that the temperature of the pulp suspension is 80 to 90°C at the location at which the bleaching agent is added and immediately downstream of said location, or that the solid content or concentration is 2 to 4% at said location.

With respect to claim 4, WEST discloses adding complexing agent to the pulp suspension (col. 6, lines 25-28) immediately upstream of and/or in said second refiner (col. 4, lines 14-22).

With respect to claim 11, WEST discloses that the temperature of the pulp suspension is very high from a bleaching aspect at the location at which the bleaching

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agent is added and immediately downstream of said location (col. 3, lines 54-64) and in that the solid content or concentration is low at said location (col. 2, lines 22-23).

With respect to claim 13, WEST discloses that the temperature of the pulp suspension is 65 to over 100°C (col. 3, lines 54-64), which contains the claimed range of 80 to 90°C, at the location at which the bleaching agent is added and immediately downstream of said location, and in that the solid content or concentration is 3 to 5% in conventional hydrosulfite bleaching (col. 2, lines 22-23), which contains one specific point within the claimed range of 2 to 4%, at said location.

The ADMITTED PRIOR ART, MADISON, WEST, and GRIMSLEY are analogous art because they are from the same field of endeavor, that of bleaching mechanical pulp. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply a bleaching agent at the location described by MADISON (between the last refiner and the screening stage) to the pulp manufacturing method of the ADMITTED PRIOR ART under drastic temperature conditions, with the addition of a complexing agent, and at a low solid concentration as taught by WEST, and to minimize the access of oxygen as taught by GRIMSLEY, to obtain the invention as specified in claims 1 through 13.

The motivations for doing so would have been that the bleaching reaction is automatically speeded as a result of the pulp having become heated by the work done on it during the second refining stage (MADISON, col. 2, lines 26-29); the temperature of the material is increased so that outgassing of oxygen-containing vapors deleterious to reduction bleaching takes place (WEST, col. 1, lines 15-17); it has been found to be



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highly desirable to maintain the temperature of the pulp above 150°F during the screening and cleaning operations to prevent any substantial brightness reversion (WEST, col. 5, lines 66-69); the presence or introduction of substantial amounts of oxygen into the pulp would rapidly destroy the effectiveness of the reducing bleaching agent (WEST, col. 3, lines 51-54); bleaching under anaerobic conditions and subsequently handling the bleached pulp under anaerobic conditions thereafter produces a significantly higher paper brightness which is retained after storage of the finished paper (GRIMSLEY, col. 3, lines 1-8); dilution of the pulp has been found to be desirable in order to prevent brightness reversion which has been found to occur to a certain extent if the pulp is stored at high consistency (WEST, col. 5, lines 51-54); and chelating agents may be incorporated into the pulp prior to incorporation of the reducing bleaching agent to improve the stability of the hydrosulfite (WEST, col. 6, lines 25-28, and lines 34-35).

***Allowable Subject Matter***

4) Claims 8-10 are allowable.

The following is an examiner's statement of reasons for indicating allowable subject matter:

The primary reason for indicating allowable subject matter is that the cited prior art does not disclose a method for making bleached mechanical and chemithermomechanical pulp that includes adding bleaching agent to reject pulp suspension after the refiner and before introducing the reject pulp suspension to the

main pulp suspension flow and bleaching said pulp under temperature in range claimed (claim 8).

***Response to Amendment***

- 5) The Title of the invention is accepted.
- 6) Applicants' arguments filed 2/28/2007, have been fully considered but they are not persuasive.

Applicants allege that the present claims comply with 35 U.S.C. 112, second paragraph. No corrections were made.

Examiner maintains that the claims 1-7, 11-13 rejection under 35 U.S.C. 112, second paragraph, is proper. Corrections are required.

Applicants allege that hindsight reasoning was used in the Office Action rejection.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

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**Conclusion**

7) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Halpern whose telephone number is (571) 272-1190. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mark Halpern  
Primary Examiner  
Art Unit 1731